CLAIMS

1. A method for power management in a tire pressure monitoring system for indicating when air pressure in a tire is below a predetermined amount, comprising:

sensing the air pressure with a pressure sensor;

sensing air temperature with a temperature sensor;

determining whether the air pressure is increasing or decreasing with respect to time;

determining whether a ratio of the air pressure and the air temperature is increasing, decreasing or remaining constant with respect to time to infer that the tire is moving, motion of the tire being determined without directly sensing acceleration or movement of the tire; and

performing the sensing of air pressure and sensing of air temperature at measurement intervals which are longer in time than when the tire is not in motion to save power in the tire pressure monitoring system when the tire is not in motion.

2. The method of claim 1 further comprising:

inferring that the tire is moving when the air pressure is increasing with respect to time and the ratio of the air pressure and the air temperature remains substantially constant with respect to time.

3. The method of claim 1 further comprising:

deciding by inference that the tire is not moving when the air pressure is decreasing with respect to time and the ratio of the air pressure and the air temperature remains substantially constant; and

performing the sensing of air pressure and sensing of air temperature at measurement intervals which are longer in time than when the tire is in motion to save power.

4. The method of claim 1 further comprising:

modifying duration of the measurement intervals based upon comparison of a long term average of change in tire pressure with a filtered average of change in tire pressure by using one or more running average filters.

5. The method of claim 4 further comprising:

implementing the one or more running average filters with computer executable instructions.

6. A tire air pressure monitoring system in a tire, comprising:

a battery for powering the tire pressure monitoring system;

a pressure sensor for sensing air pressure in the tire;

a temperature sensor for sensing air temperature in the tire;

control circuitry for determining whether the air pressure is increasing or decreasing with respect to time and determining whether a ratio of the air pressure and the air temperature is increasing, decreasing or remaining

constant with respect to time to infer that the tire is moving, motion of the tire being determined without directly sensing acceleration or movement of the tire; and

power management circuitry coupled to the battery, the pressure sensor and the temperature sensor for selectively powering the pressure sensor and temperature sensor at measurement intervals which are shorter when the control circuitry has inferred that the tire is moving than when the tire is not moving.

7. The tire air pressure monitoring system of claim 6 wherein the control circuitry infers that the tire is moving when the air pressure is increasing with respect to time and the ratio of the air pressure and the air temperature remains substantially constant with respect to time.

8. The tire air pressure monitoring system of claim 6 wherein the control circuitry determines that the tire is not moving when the air pressure is decreasing with respect to time and the ratio of the air pressure and the air temperature remains substantially constant, and the power management circuitry powers the air pressure sensor and the temperature sensor at measurement intervals which are longer in time than when the tire is in motion to save power.

9. The tire pressure monitoring system of claim 6 wherein the control circuitry controls the power management circuitry to modify powering duration of the measurement intervals based upon comparison of a long term average of change in tire pressure with a filtered average of change in tire pressure by using one or more running average filters.

10. The tire pressure monitoring system of claim 9 wherein the control circuitry further comprises a processor having a memory for storing software code that implements the one or more running average filters.

11. The tire pressure monitoring system of claim 9 wherein the control circuitry further comprises a state machine having logic code for implementing the one or more running average filters.

12. The tire pressure monitoring system of claim 6 further comprising:

a transmitter coupled to the control circuitry for transmitting an alarm signal provided by the control circuitry in response to detection of low tire pressure;

a receiver located outside of the tire for receiving the alarm signal;

processing circuitry coupled to the receiver and located outside of the tire, the processing circuitry buffering the alarm signal; and

a display coupled to the processing circuitry for providing a visual or audible indication of activation of the alarm signal.